The ‘napkin-ring’ constrictive pericarditis

Anastasios Milkas1,2*, Carlos Van Mieghem1, Lieven Van Hoe3, Emanuele Barbato1,4, and Bernard De Bruyne1

1 Cardiovascular Centre Aalst, OLV Clinic, Moorselbaan 164, Aalst B-9300, Belgium; 2 Athens Naval and Veterans Hospital, Deinokratous 70, Athens, Greece; 3 Department of radiology, OLV hospital, Moorselbaan 164, Aalst 9300, Belgium; and 4 Department of Advanced Biomedical Sciences, University of Naples Federico II, Italy

* Corresponding author. Tel: +32 53 72 1407; Fax: +32 53 72 41 85. E-mail: tmhikas@otenet.gr

A 77-year-old male was diagnosed in 1997 with constrictive pericarditis after a severe chest trauma with diaphragm injury, sternum fracture and chest empyema that eventually required drainage and decortication of the left pleura. The clinical course was favorable, as he remained in NYHA class II state for 18 years receiving only medical therapy.

During the last year, he developed clinical signs of right heart failure and became unresponsive to increasing doses of diuretics. Therefore, he was referred for a repeat catheterization with the intention to proceed with pericardiectomy. At catheterization remarkable was the finding that left ventricular angiogram (Panel A) showed a localized form of constriction due to localized severe calcification resembling a ‘napkin ring’ shape during systole. Constriction was indeed present only in the midventricular segments of the left ventricle allowing a normal expansion of the basal and apical segments which was further confirmed by CT scan (Panel B). This type of localized constriction provoked constrictive physiology as this was evident by the characteristic square root sign during right heart catheterization (Panel C) and the echocardiographic variables (medial mitral annular e’ velocity, ratio of medial mitral annular e’ to lateral mitral annular e’, and hepatic vein expiratory diastolic reversal ratio) in the study performed soon after (Panel D).

Surgical splitting of this ‘napkin ring’ without very extensive pericardiectomy allowed to restore a normal physiology. Localized forms of constrictive pericarditis have been reported as a distinct category in the classification of the disease. Our case which is presented in detailed images, reveals the characteristic ‘napkin ring’ sign during left ventricle angiography which may serve as a valuable guide to facilitate accurate diagnosis of similar cases in the future.

**Conflict of interest:** none declared.

Supplementary data are available at European Heart Journal—Cardiovascular Imaging online.